4(5) SOV/92-59-2-28/40

AUTHORS: Mayevskiy, V.Ya., Chief Engineer, and I.Sh. Tverskoy, Chief of the Planning and Estimating Bureau

TITLE: What Stands in the Way of Bulk Plant Reconstruction (Pomekhi rekonstruktsii neftebaz)

PERIODICAL: Neftyanik, 1959, Nr 2, p 28 (USSR)

ABSTRACT: The expected rise in the Soviet petroleum production calls for an immediate expansion of presently operating bulk plants and for the construction of new bulk plants. The distance between bulk plant installations as well as between residential and recreational buildings, according to the old regulations (OST 90039-39), was 50 meters, and this procedure was followed for a number of years. In October 1956 new regulations increased this distance to 100 meters. However, this provision was enforced only for bulk plants and terminals under reconstruction. Old installations which are not rebuilt are allowed to remain unchanged. These new regulations hinder bulk plant reconstruction. The space left free, according to these new regulations, was supposed to be measured not from the bulk plant limit but from such bulk plant installations as storage tanks, gasoline filling stations, etc. Moreover, new petroleum bulk plants, being built far from populated centers, are now being constructed without taking into account

What stands in the Way (Cont.) SOV/92-59-2-28/40

possible future expansion. It is evident that regulations prescribing open area should be based on the principle of measuring from the bulk plant limit and not the bulk plant installations. While the bulk plants operating at present are usually built at a distance of 50 meters from the railroad station, the new regulation (TU 108-56) provides that this distance be increased to 80 meters. It is therefore clear that the Gosstroy of USSR (State Committee on Construction of the Council of Ministers of the USSR) has to revise the regulations and provisions which are now in force for bulk plants and terminals. This must be done in order to facilitate their reconstruction.

ASSOCIATION: Ukrglavneftesnabsbyt i Proyektno-smetnoye Byuro (The Ukrglavneftesnabsbyt and The Planning and Estimating Bureau)

Card 2/2

PHASE I BOOK EXPLOITATION SOV/5078

Akademiya nauk URSR, Kiyev. Instytut elektrozvaryuvannya

Vnedreniye novykh sposobov svarki v promyshlennost'; sbornik statey. vyp. 3. (Introduction of New Welding Methods in Industry; Collection of Articles. v. 3) Kiyev, Gos. izd-vo tekhn. lit-ry UkrSSR, 1960. 207 p. 5,000 copies printed.

Sponsoring Agency: Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki imeni akademika Ye. O. Patona Akademii nauk Ukrainskoy SSR.

Ed.: N. Pisarenko; Tech. Ed.: S. Matusevich.

PURPOSE: This collection of articles is intended for personnel in the welding industry.

COVERAGE: The articles deal with the combined experiences of the Institut elektrosvarki imeni Ye. O. Patona (Electric Welding Institute imeni Ye. O. Paton) and several industrial enterprises in solving scientific and engineering problems in welding technology. Problems in the application of new methods of mechanized welding and electroslag welding in industry are discussed. This is the third collection of articles published under the same title. The Foreword was written by B. Ye. Paton, Academician of the Academy of Sciences Ukrainian SSR and Lenin prize winner. There are no references.

TABLE OF CONTENTS:

Rayevskiy, G. V. [Candidate of Technical Sciences and Lenin Prize Winner, Electric Welding Institute imeni Ye. O. Paton], V. Ya. Mayevskiy [Chief Engineer, Ukrglavneftesbyt (Ukrainian SSR Main Administration for Petroleum Marketing)], and Ye. P. Martinson [Nach. stroitel'no-montazhnogo upravleniya No. 70 (Chief of Building and Erection Administration No. 70) Trest 7, Ministerstva stroitel'stva RSFSR (Trust 7 of the Ministry for Construction, RSFSR)]. Introducing the Method of Rolling-Up Welded Structures in the Petroleum Industry 84

Zaruba, I. I. [Candidate of Technical Sciences], and A. G. Potap'yevskiy [Senior Engineer, Electric Welding Institute imeni Ye. O. Paton]. Experience in Introducing Automatic and Semiautomatic Carbon-Dioxide Shielded Welding 90

Medovar, B. I., A. G. Potap'yevskiy, F. A. Ratin [Senior Engineer], S. V. Yunger [Head of Welding Laboratory, Stalingradskiy filial Giproneftemasha (Stalingrad Branch of the State Design and Scientific Research Institute for Petroleum Machinery)], and S. A. Zandberg [Chief of Welding Bureau, Stalingradskiy mashinostroitel'nyy zavod imeni Petrova (Stalingrad Machine-Building Plant imeni Petrov)]. Development and Introduction of New Techniques in the Automatic Shielded Flux-Welding of Steel With Chrome Stainless Cladding 99

Podgayetskiy, V. V. [Candidate of Technical Sciences], I. K. Pokhodnya [Candidate of Technical Sciences], V. P. Subbotovskiy [Senior Engineer], I. I. Frumin, [Candidate of Technical Sciences, Electric Welding Institute imeni Ye. O. Paton], V. P. Gorelov [Deputy Chief Mechanic], S. Ya. Shekhter [Chief of Shop, Alchevskiy metallurgicheskiy zavod imeni K. Ye. Voroshilova (Alchevsk Metallurgical Plant imeni K. Ye. Voroshilov)], N. A. Ryzhenko [Former Chief Mechanic, Magnitogorskiy metallurgicheskiy kombinat (Magnitogorsk Metallurgical Combine)], and N. A. Mal'tsev [Chief of Welding Department, Artemovskiy zavod "Tsvetmet" (The Artemovsk "Tsvetmet" Nonferrous Metallurgical Plant)]. Experience in the Introduction of Mechanized Surfacing in Metallurgy 115

MAYEVSKIY, V. YA.

16

MAYEVSKIY, V.Ya.; TVERSKOY, [illegible].Sh.; [illegible], [illegible]; [illegible], [illegible].

Operation of telescopic devices of the lower discharge of tanks on tank farms of the Main Administration for Petroleum Marketing in the Ukraine. Neft. i gaz. prom. no.4:64-67 O-D '63. ([illegible] [illegible]:12)

1. Glavneftesnabsbyt UkrSSR.

RODOV, G.S.; MAYEVSKIY, Ye.K.

Method for detecting the moment of appearance and the position of microracks in a reinforced concrete. Zav.lab. 29 no.1:94-95 '63. (MIRA 16:2)

1. Zapadno-Sibirskiy filial Akademii stroitel'stva i arkhitektury SSSR.

(Cement—Testing)

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Studying the dynamic properties of mesh-reinforced concrete.
Trudy Zap.-Sib. fil. ASiA no.7:123-133 '62. (MIRA 18:2)

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Heat exchanger with movable head. Trudy Inst. isp. gaza AN URSR no.5:77-87 '58. (MIRA 11:12)
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Investigating the operation of kilns for firing grog floater bars.
Trudy Inst. isp. gaza AN URSR no.5:127-134 '58. (MIRA 11:12)
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FIRER, M.Ya.; SHCHEKOTIKHINA, N.M.

Studying the performance of verious refractories in the glass tank furnaces of the Gomel' glass factory. Stek.i ker. 19 no.9:4-7 S '62. (MIRA 15:9)

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(Refractory materials--Testing)

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Rate of settling of solid particles in a vibrating viscous medium. Izv. AN SSSR. Met. i gor. delo no.5:179-184 S-O '64.

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KULIYEVA, G.A.; MAYFAT, L.A.

Present-day and future studies on precipitation and snow cover in the Nakhichevan A.S.S.R. [in Azerbaijani with summary in Russian]. Izv. AN Azerb. SSR. Ser. geol.-geog. nauk no.2:103-112 '59.
(MIRA 12:8)

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MAYFAT, L.D.; YERASTOV, Ye.V.

Mechanization of casting operations in a locomotive repair shop. Zhel.dor.transp. 42 no.1:77-79 Ja '60.
(MIRA 13:5)

1. Glavnyy konstruktor Novosibirskogo parovozoremontnogo zavoda (for Mayfat). 2. Nachal'nik laboratorii Novosibirskogo parovozoremontnogo zavoda (for Yerastov).
(Railroads--Repair shops) (Iron founding)

CHERKASHIN, V.; HAYFET, A.

Simplest corn cribs. Sel'.stroi. 11 no.8:7-8 Ag '56. (MLRA 9:10)

1.Nachal'nik Belgorodskogo oblastnogo upravleniya po stroitel'stvu v kolkhozakh (for Cherkashin).2.Starshiy inzhener Belgorodskogo oblastnogo upravleniya po stroitel'stvu v kolkhozakh.
(Corn (Maize)--Storage) (Farm buildings)

MAYFET, A.; SHULENIN, M.

Efficient interfarm fattening centers. Sel'.stroi. 15 no.9: 7-9 S '60. (MIRA 13:9)

1. Glavnyy inzhener Belgorodskogo oblmezhkolkhozstroya (for Mayfet).
2. Korrespondent zhurnala "Sel'skoye stroitel'stvo" (for Shulenin).

(Belgorod Province--Feeding and feeds)

USSR / Cultivated Plants. Potatoes. Vegetables. Melons. M

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 24919

Author : Mayfet, F.
Inst : Not given
Title : Watermelon-Yield Increase at the Gathering of the Harvest in Three Periods

Orig Pub : Byul. Sil's'kogospod. inform. Poltavs'ke obl. vid. T-va dlya poshyr polit. i nauk. znan', 1957, No 1-2, 25-26

Abstract : No abstract given

Card 1/1

MAYGARIN, B.Zh.

Absolute stability of nonlinear automatic control systems.
Vest. AN Kazakh. SSR 19 no.11:58-67 N'63. (MIRA 17:5

L 9891-63 BDS
ACCESSION NR: AP3000463 S/0103/63/024/005/0599/0607

H6

AUTHOR: Maygarin, B. Zh. (Moscow)

TITLE: Stability analysis of controlled systems with an allowance for the hydraulic-actuator load

SOURCE: Avtomatika i telemekhnika, v. 24, no. 5, 1963, 599-607

TOPIC TAGS: automatic-control stability, hydraulic actuator

ABSTRACT: The equation of a hydraulic actuator (or final control element) as developed by V. A. Khokhlov (Analysis of the movement of a loaded hydraulic actuator, Avtomatika i telemekhanika, vol 18, no. 9, 1957) is analyzed. The range of definition of differential equations is determined; both the positional and the inertial loads are considered. The problem of absolute stability of indirect-control nonlinear systems is studied. "In conclusion the author thanks A. M. Letov for the formulation of the problem and V. A. Khokhlov for consultations." Orig. art. has: 54 equations and 5 figures.

Card 1/1

L 10320-63 EWT(d)/BDS--AFFTC/ASD/APGC--
Pg-4/Pk-4/Pl-4/Po-4/Pq-4--[illegible]/IJP(C)
ACCESSION NR: AP3001096 S/0103/63/024/006/0839/0843

AUTHOR: Maygarin, B. Zh. (Moscow) 13

TITLE: Absolute stability of nonlinear automatic control systems of the third order 9

SOURCE: Avtomatika i telemekhanika, v. 24, no. 6, 1963, 839-843

TOPIC TAGS: third-order control systems, automatic control system stability, Popov's criterion, Lur'ye's criterion

ABSTRACT: The example of an indirect-control third-order system is used to demonstrate the effectiveness of the Popov's criterion (Avtomatika i telemekhanika, vol. 22, no. 8, 1961) as compared to the Lur'ye's criterion (Some nonlinear problems of the theory of automatic control, Gostekhizdat, 1951) and as compared to an earlier Popov's work (Avtomatika i telemekhanika, vol. 19, no. 1, 1958). These conclusions are drawn as a result of mathematical analysis given in the article: (1) the Popov's theorem supplies sufficient, not necessary, conditions; (2) the region of absolute stability of the above system coincides with that of a linear-characteristic system; (3) the Lur'ye's theorem is not convertible; (4) the necessary and sufficient conditions for absolute stability of the above system have been obtained and presented in the article. Orig. art. has: 3 figures and 35 formulas.

L 10320-63
ACCESSION NR: AP3001096

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ASSOCIATION: none

SUBMITTED: 25Dec62
DATE ACQD: 01Jul63
ENCL: 00

SUB CODE: 00
NO REF SOV: 008
OTHER: 000

Card 2/2

L 55924-65 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l) Po-4/Pq-4/Pf-4/Pg-4/Pk-4/
Pl-4 IJP(c) BC

ACCESSION NR: AP5013264 UR/0361/65/000/001/0105/0113

AUTHOR: Maygarin, B. Zh.

39
B

TITLE: A study of the stability of nonlinear control systems 14

3-

SOURCE: AN KazSSR. Izvestiya. Seriya fiziko-matematicheskikh nauk, no. 1, 1965, 105-113

TOPIC TAGS: tachometric feedback, control system stability, hydraulic servo mechanism, nonlinear control system

9

ABSTRACT: The absolute stability of an automatic control system with tachometric feedback is studied theoretically. The inertial, velocity, and position loads of the hydraulic servo mechanism are taken into account. The mathematical formulation of the problem is followed by the derivation of the equations of the hydraulic servo mechanism, the presentation of the canonic form of the entire system of equations, the derivation of formulas for the calculation of the transformation coefficients, and the discussion of the stability of such controls. The article also presents the pertinent sufficiency criteria. Orig. art. has: 57 formulas.

Card 1/2

L 55924-65

ACCESSION NR: AP5013264

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ASSOCIATION: None

SUBMITTED: 00

ENCL: 00

SUB CODE: IE

NO REF SOV: 004

OTHER: 000

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Card 2/2

ACC NR: AT7001740 SOURCE CODE: UR/0000/66/000/000/0037/0042

AUTHOR: Maygarin, B. Zh.

ORG: none

TITLE: An example of the stability of control systems, taking into account the external load of a hydraulic actuating mechanism

SOURCE: AN KazSSR. Institut matematiki i mekhaniki. Uravneniya matematicheskoy fiziki i funktsional'nyy analiz (Equations of mathematical physics and functional analysis). Alma-Ata, Izd-vo Nauka KazSSR, 1966, 37-42

TOPIC TAGS: control system stability, hydraulic device, nonelectric regulator, automatic control system

ABSTRACT: In an earlier article (Issledovaniye nelineynykh reguliruyemykh sistem. Izvestiya AN KazSSR, seriya matemat. nauk, 1965, vyp. 1), the author studied the absolute stability of a system of automatic control. The control considered was of the type having tachometric reverse contact, and in the system analysis account was made of the inertial velocity and positional loading of the hydraulic actuating mechanism. Sufficient criteria of the system have been obtained. To demonstrate the effect of the external load coefficients (a, b, c) of the hydraulic actuating mechanism on the selection of regulator parameters r, N, a specific case is considered.

Card 1/3

ACC NR: AT7001740

At n = 1,

$$\begin{cases} \dot{\eta}_1 = b_{11}\eta_1 + n_1\xi, \\ \dot{\xi} = f(\sigma)\varphi(\omega), \\ \sigma = p_1\eta_1 - r\xi - N\dot{\xi}, \end{cases}$$

where b_{11}, n_1, p_1, r and N are constant coefficients, and the function $\varphi(\omega)$ is as given in the previous article. With the use of the definitions

$$\begin{cases} \eta_2 = \xi,\ \dot{\xi} = z,\ b_{12} = n_1,\ b_{21} = \frac{p_1}{N},\ b_{22} = -\frac{r}{N}. \\ p_2 = -r,\ m_1 = \varepsilon_1 = 0,\ m_2 = 1,\ \varepsilon_2 = \frac{c}{b}N. \\ g_\beta = \sum_{\alpha=1}^{2} p_\alpha b_{\alpha\beta} + \frac{b}{a}(p_\beta + \varepsilon_\beta),\ R = \frac{b}{a} - \frac{r}{N}, \end{cases}$$

the basic equations may be expressed in the normal form

$$\dot{\eta}_k = \sum_{\alpha=1}^{2} b_{k\alpha}\eta_\alpha - \frac{m_k}{N}\cdot\sigma, \quad (k = 1, 2)$$

$$\dot{\sigma} = g_1\eta_1 + g_2\eta_2 - R\sigma - N\psi(\sigma, \eta_1, \eta_2)\, Sgn\, \sigma,$$

where

$$\psi(\sigma, \eta_1, \eta_2) = \frac{f^2(\sigma) - z^2(\sigma_1, \eta_1, \eta_2)}{a\cdot f^2(\sigma)}.$$

ACC NR: AT7001740

The example proceeds through the establishment of stability criteria for the system, followed by the analysis of domains of stability. These domains are plotted for specific values of the regulator parameters. Orig. art. has: 31 equations and 3 figures.

SUB CODE: 13, 14, 09/ SUBM DATE: 22Jun66/ ORIG REF: 001

Card 3/3

Maygel'dinov A. Sh.

YEVTEYEV,F.S.; MAYGEL'DINOV,A.Sh.; CHISTYAKOV,G.A.; SELIVERSTOVA,A.A., redaktor; KONYASHINA,A., tekhnicheskiy redaktor

[How we repair water supply lines] Kak my remontiruem vodoprovodnuiu set'. Moskva, Izd-vo Ministerstva kommunal'nogo khoziaistva RSFSR, 1954. 41 p. (MLRA 9:3)
(Water pipes)

MAYGEL'DINOV, I.A.

Comparative characterization of technical methods of determination
of thermal stability of polymers. Khim. i Fiz. Khim. Vysokomolekul.
Soedineniy, Doklady 7-oy Konf. Vysokomolekul. Soedineniyam '52, 196-203.
(CA 47 no.15:7817 '53) (MLRA 5:7)

S/191/61/000/003/001/015
B124/B203

AUTHORS: Maygel'dinov, I. A., Grigor'yeva, A. V., Tsyur, K. I.

TITLE: Effect of molecular weight and some other factors on the properties of styrene and dichloro styrene polymers

PERIODICAL: Plasticheskiye massy, no. 3, 1961, 7-12

TEXT: The present paper describes an attempt of studying experimentally the quantitative dependence of some technical properties of polymers on their molecular weight by means of practical examples. The authors determined the deformation curves, the modulus of elasticity, the resistance to heat and impact, and the flowing point of polystyrene and polydichloro styrene specimens with different molecular weights; besides the effect of molecular weight, they also determined that of temperature, of quenching, of the filler, and of the amount of residual monomer on the properties of the polymer. Specimens with different molecular weights were prepared by thermomechanical destruction on rolls at 100-135°C in polystyrene, and at 130°C in polydichloro styrene; besides, the authors studied some specimens obtained by emulsion-, block-, and graft polymerization. The molecular

Card 1/11

weight of polystyrene was calculated from the equation log $[\eta] = -4.021 + 0.744 \log M$ (1), and that of polydichloro styrene from V. N. Tsvetkov's equation: $[\eta] = 1.259 \cdot 10^4 \cdot M^{0.69}$ (2). The viscosity of unbroken specimens was determined in benzene at 25°C. The modulus of elasticity E at a temperature below the vitrification point T_v was determined from the bending deformation of the specimen lying on two supports by means of the modulus meter of NIIPP. The dependence of deformation on temperature at medium temperatures was determined by indentation of a ball, diameter 6 mm, and a 1-kg load applied to it. The temperature dependence of deformation at high temperatures was determined by a new method basing on a determination of deformability of the material under the action of its own weight with gradual increase of temperature. The authors studied the dependence of physicomechanical properties of polydichloro styrene on the molecular weight for molecular weights between 664,000 and 43,600 (Table 1), and those of polystyrene for molecular weights between 641,000 and 45,800 (Table 2). In the range studied, the modulus of elasticity is independent of molecular weight. The deformation curve and its position on the temperature scale is practically independent of the molecular weight of the polymer. The resistance to heat T_{100} of the polydichloro styrene specimens examined is, independently of the molecular weight, equal to 146 ± 2°C, and that of polystyrene 109 ± 2°C. The specific impact strength is independent of the molecular weight in the range $M = 500,000 - 120,000$. The relations $T_f = -278 + 89.3 \log M$ (3) and $T_f = -225 + 89.0 \log M$ (4) hold for the following temperature of polystyrene and polydichloro styrene as dependent on the molecular weight. Table 3 shows the heat resistance factors T_{100} of some polystyrene specimens made by various procedures and their monomer content. Fig. 5 shows the effect of the introduction of fillers on the modulus of elasticity and the heat resistance of polystyrene. Fig. 6 shows the temperature dependence of polystyrene deformation on the basis of some test results. Heating the specimens to T_v or less, and cooling them at different rates, show that the cooling rate does not influence the Martens heat resistance (Table 4). On both sides of the vitrification point, there is a 15-20°C wide range in which the modulus of elasticity depends on the cooling rate in the conversion from the highly elastic to the amorphous state. Fig. 7 illustrates

S/191/61/000/003/001/015
B124/B203

Effect of molecular weight...

the temperature dependence of the logarithm of the modulus of elasticity. At temperatures below T_v, the temperature dependence of the modulus of elasticity is represented by a straight line whose equation is $E = 41,800 - 66t$ (6) for polydichloro styrene, and $E = 31,400 - 73t$ (7) for polystyrene. T. V. Trofimova and Zimin (Ref. 7: POKh, 6, no.2, 101 (1939)) are mentioned. There are 8 figures, 4 tables, and 9 references: 7 Soviet-bloc and 2 non-Soviet-bloc. The reference to the English-language publication reads as follows: W. R. Krigbaum, P. J. Flory, J. Polymer Sci., 11, no.1, 37 (1953)).

Card 4/11

S/191/61/000/003/001/015
B124/B203

Effect of molecular weight...

① Способ изготовления образца	② Продолжительность вальцевания, минуты	③ Характеристическая вязкость	④ Молекулярный вес	⑤ Логарифм молекулярного веса	⑥ Температура текучести, °C	⑦ Теплостойкость T_{100}, °C	⑧ Модуль упругости при 20° кГ/см²
⑨ Порошок	—	1,31	664000	5,822	—	—	—
⑩ Прессование	0	1,18	571000	5,757	289	148	42000
⑪ Вальцевание + прессование	3	0,49	160000	5,204	236	147	41300
	5	0,39	115000	5,061	225	147	4140
	10	0,28	71000	4,851	209	146	41700
	15	0,19	40400	4,606	192	144	40800
	20	0,25	60200	4,780	202	147	40700
	30	0,23	53300	4,727	198	144	41200
	45	0,20	43600	4,639	197	—	42100
	60	0,20	43600	4,639	197	145	41800

Table 1

Table 1: Dependence of physicomechanical properties of polydichloro styrene on the molecular weight.
Legend: (1) Production method of the specimen, (2) time of rolling, min, (3) intrinsic viscosity, (4) molecular weight, (5) logarithm of the molecular weight, (6) flowing temperature, °C, (7) heat resistance, T_{100}, °C, (8) elastic modulus at 20°C, kg/cm², (9) powder, (10) pressing, (11) rolling and pressing.
Card 5/11

S/191/61/000/003/001/015
B124/B203

Effect of molecular weight...

Table 2.

Способ изготовления образца	Продолжительность вальцевания минуты	Характеристическая вязкость	Молекулярный вес	Логарифмы молекулярного веса	Температура текучести, °C	Теплостойкость T_{100}, °C	Модуль упругости при 20° кГ/см²
Порошок	—	2,09	641000	5,807	—	—	—
Прессование	0	1,63	488000	5,688	230	105	30000
Вальцевание + прессование	3	1,25	343000	5,535	215	106	30000
	5	1,00	254000	5,404	203	106,5	30300
	10	0,88	212000	5.327	194	107.5	30100
	15	0,83	198000	5,296	191	107	29700
	20	0,72	163000	5,213	185	107	30300
	30	0,53	108000	5,034	163	108	30600
	45*	0,74	169000	5,229	187	109	30200
	60*	0,82	198000	5,296	187	110	29400
(10) Прессование							
(11) эмульсионный полистирол «Д»	0	1,00	253000	5,403	205	108	31000
(12) блочный полистирол «К»	0	0,92	226000	5,355	190	92	30000
(13) блочный полистирол «Н»	0	1,10	289000	5,4[illegible]	197	9[illegible]	31200
(14) бисерный полистирол «Л»	0	0,28	45800	4,662	131	90	—

(15) * Вальцевание производилось при 135°. В остальных случаях—при 100—110°.

Card 6/11

Legend to Table 2: Dependence of physicomechanical properties of polystyrene on the molecular weight. Nos.1-11 as in Table 1, (12) emulsion polystyrene "Д" ("D"), (13) bulk polystyrene "К" ("K"), (14) bulk polystyrene "Н" ("N"), (15) bead polystyrene "Л" ("L"), (16) * the rolling was done at 135°C; otherwise at 100 - 110°C.

Table 3: Heat resistance of industrial lots of polystyrene and their content of residual monomer. Legend: (1) Polystyrene, (2) heat resistance, T_{100}, °C, (3) amount of residual monomer, %, (4) reprecipitated (bulk), (5) reprecipitated (emulsion type), (6) emulsion type "Д" ("D"), (7) emulsion type "С" ("S"), (8) bulk type "Н" ("N"), (9) bulk type "К" ("K"), (10) bead type "Л" ("L").

Таблица 3

Теплостойкость производственных партий полистирола и содержание в них остаточного мономера

① Полистирол	② Теплостойкость T_{100} °C	③ Количество остаточного мономера %
④ Переосажденный (блочный)	110	0,02
⑤ Переосажденный (эмульсионный)	112	0,05
⑥ Эмульсионный «Д»	108	0,07
⑦ Эмульсионный «С»	105	0,25
⑧ Блочный «Н»	98	0,57
⑨ Блочный «К»	92	1,25
⑩ Бисерный «Л»	90	1,55

Table 3

S/191/61/000/003/001/015
B124/B203

Effect of molecular weight...

Table 4: Dependence of the heat resistance of polystyrene on the production conditions of the specimen

Legend: (1) Specimen heated to temperature, (2) heat resistance according to Martens, °C, (a) specimen cooled, (b) quickly, (c) slowly, (3) temperature difference, °C.

Таблица 4

Зависимость теплостойкости полистирола от условий подготовки образца

① Образец нагрет до температуры °С	② Теплостойкость по Мартенсу, °С		③ Разность температур °С
	ⓐ образец охлажден		
	ⓑ быстро	ⓒ медленно	
60	82	82,5	0,5
70	82,5	82,5	0,0
80	82,5	83	0,5
90	83	86	3,0
100	67	87,5	20,5
115	65	86,5	21,5

Table 4

Card 8/11

S/191/61/000/003/001/015
B124/B203

Effect of molecular weight...

Fig. 5: Dependence of modulus of elasticity and heat resistance of polydichloro styrene on the filler concentration

Legend: (1) Heat resistance, (2) modulus of elasticity, (a) heat resistance according to NIIPP, (b) modulus of elasticity, kg/cm^2, (c) filler concentration, %.

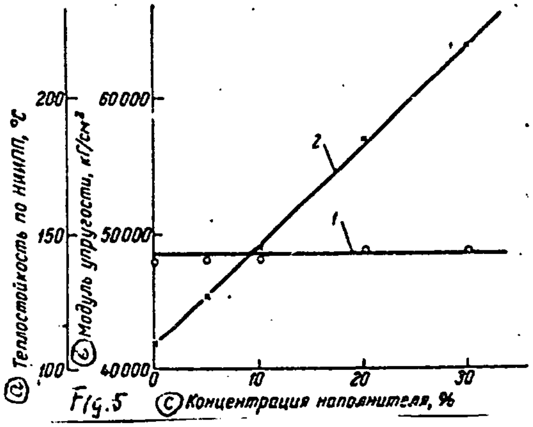

Fig. 5

Card 9/11

Fig. 6: Temperature dependence of polystyrene deformation (in a Martens apparatus)

Legend: (1) and (1') quickly cooled specimens, (2) and (2') slowly cooled specimens, (a) deformation, mm, (b) temperature, °C.

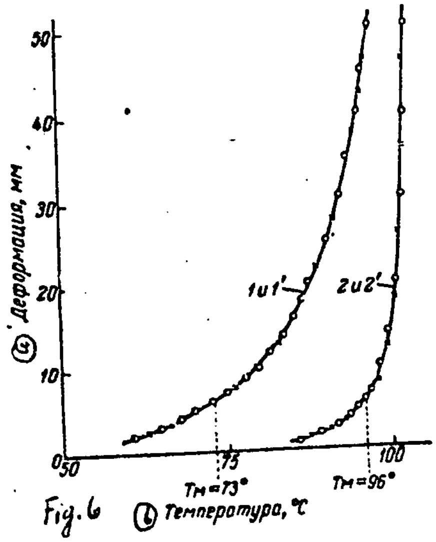

Fig.6

Fig. 6

S/191/61/000/003/001/015
B124/B203

Effect of molecular weight...

Fig. 7: Temperature dependence of the logarithm of the modulus of elasticity

Legend: (1) Polystyrene, (2) polydichloro styrene, (a) logarithm of the elastic modulus, (b) temperature, °C.

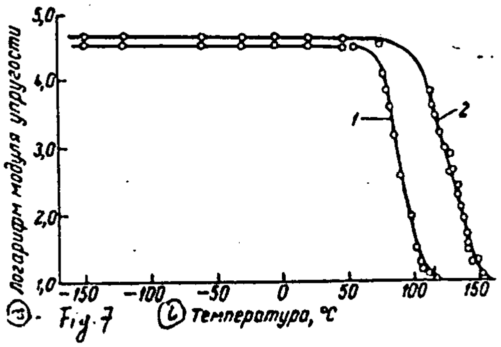

Fig. 7

Card 11/11

MAYGEL'DINOV, I.A.; TSYUR, K.I.

Modulus of elasticity and heat resistance of polyvinyl alcohol acetals. Plast.massy no.5:7-11 '61. (MIRA 14:4)
(Vinyl compounds)

MAYGEL'DINOV, I.A.; TSYUR, K.I.

Thermomechanical properties of crystalline polymers. Part 1: Polyethylene. Vysokom.soed. 5 no.2:243-251 F '63.

(MIRA 16:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut polimerizatsionnykh plastmass.

(Polyethylene crystals)

MAYGEL'DINOV, I.A.; TSYUR, K.I.

Thermomechanical properties of crystalline polymers. Part 2: Polymer of 3,3-bis(chloromethyl)oxacyclobutane. Vysokom.soed. 5 no.2:252-257 F '63. (MIRA 16:2)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut polimerizatsionnykh plastmass.
(Oxetane) (Polymer crystals)

MAMATOV, A.D.; KABRIN, L.A.; MAYGOV, I.V.

For the lengthening of the service life of coke oven batteries.
Koks i khim. no.12:27-29 '63. (MIRA 17:1)

1. Kemerovskiy koksokhimicheskiy zavod.

MAYGOV, V.Ya.; ZABAROVSKIY, M.A.

Careful handling of freight cars in loading and unloading. Zhel. dor. transp. 47 no.7:56-57 Jl '65. (MIRA 18:7)

1. Zamestitel' nachal'nika sluzhby vagonnogo khozyaystva Zapadno-Sibirskoy dorogi (for Maygov). 2. Nachal'nik otdela vagonnogo khozyaystva Novokuznetskogo otdeleniya Zapadno-Sibirskoy dorogi (for Zabarovskiy).

INDUKAYEV, D.P., assistent; MAYGOV, V.Ya.; ZAREZENKO, A.N.

Fluorescent car lighting. Zhel. dor. transp. 41 no.10:33-36 0 '59.
(MIRA 13:2)

1.Novosibirskiy institut inzhenerov zheleznodorozhnogo transporta (for Indukayev). 2.Glavnyy inzhener sluzhby vagonnogo khozyaystva Tomskoy dorogi (for Maygov). 3.Zamestitel' nachal'nika passazhirskogo vagonnogo depo stantsii Novosibirsk.
(Fluorescent lighting) (Railroads--Cars)

AMELINA, Anna Aleksandrovna, inzh.; DEVYATKOV, V.F., kand. tekhn. nauk, retsenzent; MAYGOV, V.Ya., inzh., retsenzent; SARANTSEV, Yu.S., inzh., red.; KHITROV, P.A., tekhn. red.

[Arrangement and repair of car axles with roller bearings] Ustroistvo i remont vagonnykh buks s rolikovymi podshipnikami. Moskva, Vses. izdatel'sko-poligr. ob"edinenie M-va putei soobshcheniia, 1961. 223 p. (MIRA 14:9)

(Car axles)

MAYGUR, G.

Automobile education combine aids the polytechnical training of school students. Avt.transp.34 no.5:35 My '56. (MLRA 9:9)

1.Prepodavatel' Kiyevskogo oblastnogo avtomobil'nogo uchebnogo kombinata.
(Kiev--Automobiles--Study and teaching)

PECHONYY, Khaim Davidovich; MAYGUR, G.L., inzh., retsenzent; TSELUYKO, A.S., inzh., red.; NIKIFOROVA, R.A., inzh., red.; GORNOSTAY-POL'SKAYA, M.S., tekhn. red.

[Handbook on electric equipment for motortracks, tractors and motorcycles] Spravochnik po elektrooborudovaniiu avtomobilei, traktorov, mototsiklov. 2., dop. izd. Moskva, Mashgiz, 1961. 246 p. (MIRA 14:10)

(Motor vehicles—Electric equipment)

MAYGUROV, Ye.N.

Determining the length of a loop or insertion to change the delivery and pressure at the end of a section of gas pipeline. (MIRA 17:8)
Gaz. prom. 7 no.9:46-48 '62.

MAYGUROV, Ye.N.; REVA, Ye.A.

Estimating the passability and determinating the motive force for methods of internal pipeline cleaning. Gaz. delo no.1:17-19 '65. (MIRA 18:6)

1. Ukrainskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta prirodnogo gaza.

CZEBOTARIEW, R.S.; KULAKOWSKA, O.P.; MAYKA, V.I.

Role of parasitological factor in colic and incertain other diseases of horses. Wiadomosci parazyt. Marsz. 4 no.4:309-317 1958.

1. Z Zakladu Parazytologii Instytutu Zoologii AN USSR.
(GASTROINTESTINAL DISEASES,
parasitol. in horses (Pol))
(PARASITIC DISEASES,
gastrointestinal in horses (Pol))
(HORSES, dis.
gastrointestinal parasitic (Pol))

ACCESSION NR: AP4042064 S/0105/64/000/007/0032/0034

AUTHOR: Maykopar, A. S. (Candidate of technical sciences)

TITLE: Potentialities of single-phase automatic circuit reclosure on a 500-kv, 500-km line with a shunt reactor

SOURCE: Elektrichestvo, no. 7, 1964, 32-34

TOPIC TAGS: power transmission line, 500 kv transmission line, 500 km transmission line, automatic circuit reclosure

ABSTRACT: The application of single-phase automatic reclosure to long h-v transmission lines is complicated because of the power follow from the beyond-the-arc channel. It is theoretically shown that an essential voltage rise across the switched-off phase, due to the line-capacitance reactor-inductance resonance, occurs only after a few cycles after the power-follow arc has been interrupted. For a 500-kv line equipped with a shunt reactor, the estimated beat-voltage surplus to the recovery voltage is 15—20 kv, or roughly one-half the beat voltage in the case of a no-shunt reactor. The arc-extinguishing time with the reactor was observed to be shorter than that without the reactor on a 500-kv, 391-km line operating under no-load conditions. Further experiments involved a 500-kv,

Card 1/2

ACCESSION NR: AP4042064

500-km line passing a 250-Mw 0.75-p.f. (i.e., about 50% its rated) load. A single artificial line-to-ground fault (2 ka) was arranged. The automatic-reclosure system interrupted the circuit in 0.16 sec at the first substation, after which the fault current dropped to 0.8 ka; the power-follow arc was interrupted in 0.27 sec. A beat-type recovery voltage was observed. Three cases of automatic reclosure have been recorded on a 500-kv line which has been in actual operation for some time: one was a "stable short," and two were grounds developing into phase-to-phase faults; relay protection time was 1 sec. On other 500-kv lines, where the resonance overvoltage was high and the reactor was disconnected along with the faulty phase, through breaker action, no ground developed into a 2-phase fault, and the automatic reclosure operations were correct. Orig. art. has: 6 figures and 7 formulas.

ASSOCIATION: VNIIE (All-Union Scientific Research Institute of Electric Power Engineering)

SUBMITTED: 10Jul61

ENCL: 00

SUB CODE: EE

NO REF SOV: 003

OTHER: 000

Card 2/2

MAYKAPAR, G. I.

Raschet skorosti tormozheniia. Moskva, 1944. (TSAGI. Trudy, no. 547)

Title tr.: Braking speed calculation.

NCF

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

Card 1/1

MAYKAPAR, G. I

AUTHOR: Maykapar, G. I. (Moscow). 24-6-21/24

TITLE: Determination of the shape of a solid boundary from a given value of supersonic speed along it. (Opredeleniye formy tverdoy granitsy po zadannoy na ney velichine sverkhzvukovoy skorosti).

PERIODICAL: "Izvestiya Akademii Nauk, Otdeleniye Tekhnicheskikh Nauk" (Bulletin of the Ac.Sc., Technical Sciences Section), 1957, No.6, pp.136-137 (U.S.S.R.)

ABSTRACT: In designing flat canals with supersonic speeds of gas flow without shock waves the following elementary problem may occur, for instance, if it is necessary to prevent separation of flow in the boundary layer: the speed is given along a characteristic AB and the speed v is also given at the boundary of the solid AC; it is necessary to determine the shape of the solid wall AC and the speed in the curvilinear triangle ABC (Fig.1) as a function of the arc s (between B and C). If the points B and C are not located on a single characteristic of the second family, the curvilinear triangle will be delimited by that characteristic of the second family emanating from the points B and C, for which the conditions are known at both ends. The problem is similar to the known elementary problem , dealt with by Kochin, N.E.

Card 1/2

24-6-21/24

Determination of the shape of a solid boundary from a given value of supersonic speed along it. (Cont.)

et alii (1), of determining a speed from a given characteristic AB and a solid wall AC, which is solved directly in the flow plane xy.
There are two figures and one Slavic reference.

SUBMITTED: February 14, 1957.

AVAILABLE:

Card 2/2

SOV/24-58-7-19/36

AUTHOR: Maykapar, G.I. (Moscow)

TITLE: On the Laminar Flow, in Tubes, of Liquids of Different Viscosities (O Laminarnom techenii v trubakh zhidkostey s razlichnoy vyazkost'yu)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, 1958, Nr 7, pp 108 - 114 (USSR)

ABSTRACT: The present paper is concerned with the flow of liquids with different physical properties. Analysis of such problems gives information on the effect of properties of liquids in the layer near to the wall of the tube. It is shown that changes in the physical characteristics of a liquid in the boundary layer have the following effect: 1) a reduction in the viscosity of the boundary layer leads to a reduction in the frictional resistance and also a reduction in the heat transmission through the walls when the temperature does not change along the length of the tube. Alternatively, a reduction in the viscosity leads to a slower increase in the temperature along the length of the tube when the walls are thermally insulated and to an increase in the temperature difference between the wall and the axis of the tube;

Card 1/2

SOV/24-58-7-19/36

On the Laminar Flow, in Tubes, of Liquids of Different Viscosities

2) the temperature of the wall depends strongly on the coefficient of thermal conductivity of the boundary layer. When the walls are thermally insulated the effect of the specific heat and the density of the boundary layer on the temperature gradient and the temperature difference between the wall and the axis of the tube is less important than the effect of the viscosity. The paper is theoretical and the results finally obtained are summarised in 7 figures. There are 7 figures.

SUBMITTED: December 20, 1957

Card 2/2

MAYKAPAR, G.I. (Moskva)

Calculating the effect of centrifugal forces on air pressure onto the surface of an arbitarily shaped body streamlined by a high-speed supersonic flow. Prikl. mat. i mekh. 23 no.1:64-69 Ja-F '59. (MIRA 12:2)

(Aerodynamics, Supersonic)

MAYKAPAR, G. I. (Moscow)

"Vortex Theory of Rotary Wings."

"Wave Drag of Non-Axisymmetric Bodies at Supersonic Speeds."

reports presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

ACCESSION NR: AT3003361 S/2632/62/000/024/0082/0089

AUTHOR: Maykapar, G. I.

TITLE: Investigation of a diffuser with wedge-shaped blades

SOURCE: Moscow. Tsentral'nyy aero-gidrodinamicheskiy institut. Promshlennaya aerodinamika, no. 24, 1962. Lopatochnyye mashiny i techeniya v kanalakh, 82-89

TOPIC TAGS: aerodynamics, hydrodynamics, fluid dynamics, gas dynamics, diffuser, diffuser blade, wedge-shaped blade, circular cascade, conformal, transformation, conformal mapping, Christoffel-Schwarz, Christoffel-Schwarz formula, Christoffel-Schwarz equation, number of blades, blade angle, wedge angle, blade thickness

ABSTRACT: With reference to the conformal mapping of a circular cascade with blades (BL) formed by polygonal contours onto the inner portion of a circumference by means of the Christoffel-Schwarz formula, this paper examines in detail the special case of wedge-shaped polygonal BL's expanding toward an infinitely distant point. The practical interest of such a cascade lies in the schematization of a blade diffuser of a modern centrifugal compressor (CP). The mapping is performed by representing the polygonal contour of n BL's in the Z plane onto a unit circumfer-

Card 1/2

ACCESSION NR: AT3003361

ence on the ζ plane, so that the edges of the BL's in the Z plane will be represented by points of the circumference in the ζ plane, whereupon the general Christoffel-Schwarz formula is employed to obtain a relationship between the two. The inclination of the BL's with respect to a radius is expressed, and mapping-parameter relationships are developed. Analytical expressions are obtained for the flow in the diffuser and the effect of the number of BL's, their inclination angle, and the angle of aperture (thickness) of the wedges on the changes in velocity along the BL contours. It is concluded that an increase in the number of BL's is advisable for greatest effectiveness. The effect of the wedge thickness (the wedge angle) on the change in velocity outside of the interblade channel is comparatively small. From the examples adduced it is spparent that the calculation of a diffuser with wedge-shaped BL's affords the possibility of evaluating the effect of the BL geometry on the operation of the diffuser and can serve as an auxiliary tool for the analysis of experimental data. Orig. art. has 13 figs. and 14 numbered eqs.

ASSOCIATION: TsAGI

SUBMITTED:	00	DATE ACQ:	27Jun63	ENCL:	00
SUB CODE:	AI, PR	NO REF SOV:	000	OTHER:	000

Card 2/2

BASKIN, V.E., D'YACHENKO, A.S.; MAYKAPAR, G.I.; MARTYNOV, A.I. (Moskva)

Investigating air flows and loads on helicopter rotor blades in a horizontal flight. Inzh. zhur. 3 no.3:446-459 '63. (MIRA 16:10)

(Helicopters)

MAYKAPAR, G.I. (Moskva)

Unidimensional viscous fluid flow between two cylindrical walls.
Izv. AN SSSR. Mekh. i mashinostr. no. 2:175 Mr-Ap '64.
(MIRA 17:5)

ACCESSION NR: AP4041413 S/0179/64/000/003/0016/0020

AUTHOR: Maykapar, G. I. (Moscow)

TITLE: Viscous flow near a cusped leading edge of a solid body

SOURCE: AN SSSR. Izv. Mekhanika i mashinostroyeniye, no. 3, 1964, 16-20

TOPIC TAGS: supersonic flow, flow separation, boundary layer, displacement thickness, viscous flow

ABSTRACT: A plane supersonic viscous fluid flow near a cusped leading edge of a solid body is investigated, and conditions governing the separation of flow for angles $\tau \lessgtr \pi$ are studied (see Fig. 1 of the Enclosure). The effect of the cusped edge on velocity and enthalpy profiles is outlined. It is shown that: 1) the flow separation is always present in flow over cusped edges; 2) the boundary-layer displacement thicknesses behind and before a cusped edge are inversely proportional to densities of external flow; 3) a method of expansion in $R^{-1/2}$ power series can be used for the solution of the Navier-Stokes equation for the flow near a rounded edge; 4) the separation of

Card 1/3

ACCESSION NR: AP4041413

supersonic flow behind a rounded convex edge may be explained by the action of centrifugal forces. These conclusions also concern axisymmetrical bodies, since the transverse curvature near a cusped edge is small when compared with the curvature of the profile. Orig. art. has: 6 figures and 16 formulas.

ASSOCIATION: none

SUBMITTED: 18May63 ATD PRESS: 3064 ENCL: 01

SUB CODE: ME NO REF SOV: 001 OTHER: 002

Card 2/3

ACCESSION NR: AP4041413 ENCLOSURE: 01

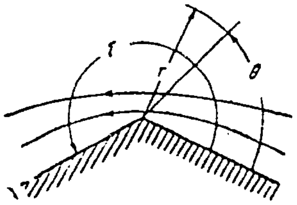

Fig. 1. Flow configuration

Card 3/3

ACCESSION NR: AP4027599 S/0040/64/028/002/0381/0382

AUTHOR: Maykapar, G. I. (Moscow)

TITLE: Computation of streamlines with a known pressure distribution at the surface of a solid body

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 2, 1964, 381-382

TOPIC TAGS: streamline, pressure distribution, nonviscous gas flow

ABSTRACT: The computation of streamlines of a nonviscous gas is considered with a known (e.g., by experiment) pressure distribution at the surface of a solid body. A curvilinear orthogonal coordinate system is taken such that the coordinate lines q_1 and q_2 lie in the body surface. The angle Θ is formed by the velocity w with the tangent to q_1. Then the system of equations for the characteristic streamlines is obtained:

$$\frac{H_1 dq_1}{\cos\theta} = \frac{H_2 dq_2}{\sin\theta} = \frac{d\theta}{R}$$

Card 1/2

ACCESSION NR: AP4027599

H_1 and H_2 are the Lame coefficients and

$$R = \frac{\gamma - 1}{2\gamma} \frac{(p/p_0)^{\varkappa}}{1 - (p/p_0)^{\varkappa}} \left(\frac{\sin\theta}{H_1} \frac{\partial \ln p}{\partial q_1} - \frac{\cos\theta}{H_2} \frac{\partial \ln p}{\partial q_2} \right) - \\ - \frac{\sin\theta}{H_1} \frac{\partial \ln H_2}{\partial q_1} + \frac{\cos\theta}{H_2} \frac{\partial \ln H_1}{\partial q_2} \qquad \left(\varkappa = \frac{\gamma - 1}{\gamma} \right)$$

Here γ is the ratio of specific heats, p_0 and ρ_0 are constant along the streamlines and

$$p = p_0 \left(1 - \frac{w^2}{w_m^2} \right)^{\frac{\gamma}{\gamma-1}}, \quad \rho = \rho_0 \left(1 - \frac{w^2}{w_m^2} \right)^{\frac{1}{\gamma-1}} \quad \left(w^2 = v_1^2 + v_2^2, \ w_m^2 = \frac{2\gamma}{\gamma - 1} \frac{p_0}{\rho_0} \right)$$

where v_1 and v_2 are the projections of the velocity. Orig. art. has: 31 equations.

ASSOCIATION: none

SUBMITTED: 20Nov63

DATE ACQ: 28Apr64

ENCL: 00

SUB CODE: PH

NO REF SOV: 002

OTHER: 001

Card 2/2

L 24733-65 EWT(1)/EWP(m)/EWA(d)/FCS(k)/EWA(1) Pd-1 BSD/SSD/AFWL/AEDC(a)/SSD(b)/ASD(f)-3/ASD(p)-3/AFETR/AFTC(a)/APGC(a)

23

ACCESSION NR: AP5002604 S/0179/64/000/005/0142/0144 B

AUTHOR: Maykapar, G. I. (Moscow)

TITLE: Predicting supersonic flow configurations around solid bodies by means of plane shock waves

SOURCE: AN SSSR. Izvestiya. Mekhanika i mashinostroyeniye, no. 5, 1964, 142-144

TOPIC TAGS: supersonic flow, shock wave, plane shock wave, conical body, conical flow, two dimensional flow

ABSTRACT: A general discussion is presented of previous studies on predicting supersonic flow patterns around r class of conical bodies with star-like cross sections by means of a system of plane shock waves. This family of bodies is characterized by the fact that the airflow passes through two-dimensional shocks resting on body fins (see Fig. 1 of the Enclosure). The geometry of the plane shock-wave system is given for various bodies. An attempt is made to demonstrate that the class of bodies which may be analyzed by using plane shock waves can

Card 1/3

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L 24733-65

ACCESSION NR: AP5002604

be extended substantially through changing the shape of the body cross section along its length. The problem of the "physical correctness" of the solutions obtained by others is discussed by considering the flow pattern around an infinitely long, slipping wedge, under the assumption that the velocity component normal to the fin AB behind a plane shock is smaller than the velocity of sound. Orig. art. has: 6 figures.

ASSOCIATION: none

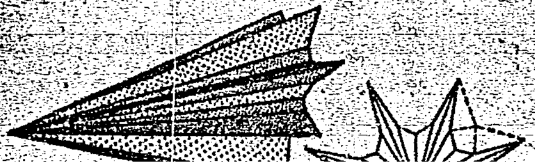
SUBMITTED: 23Mar64	ENCL: 01	SUB CODE: ME
NO REF SOV: 005	OTHER: 004	ATD PRESS: 3167

Card 2/3

L 24733-65

ACCESSION NR: AP5002604

ENCLOSURE: 01



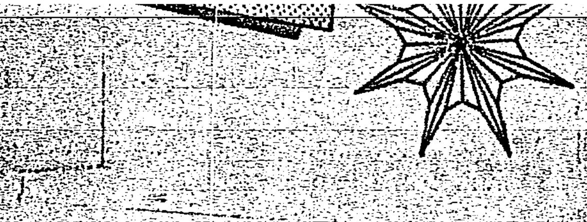


Fig. 1. Body configuration

Broken lines - plane shocks.

L 8929-66 EWT(d)/EWT(1)/EWP(m)/EWT(m)/EWP(w)/ETC/EPF(n)-2/EWG(m)/EWA(d)/EWP(v)/EWP(k)

ACC NR: AP5026934 FCS(k)/EWA(h)/ETC(m) EWA(1) WW/EM **SOURCE CODE:** UR/0373/65/000/005/0144/0146

53, 54

AUTHOR: Maykapar, G. I. (Moscow)

ORG: none

76

TITLE: On thermal conduction calculations in the base region

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 5, 1965, 144-146

21, 44, 55

TOPIC TAGS: heat transfer, wake flow, pressure distribution, boundary layer, inviscid flow, supersonic flow

1, 55

26

ABSTRACT: The base flow behind a conical vehicle at supersonic speeds and high Reynolds numbers was investigated briefly. The schematic of the base flow is shown in Fig. 1.

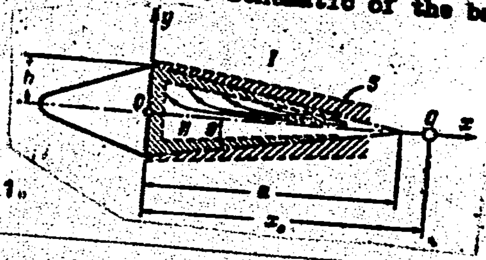


Fig. 1.

Card 1/2

2

L 8929-66

ACC NR: AP5026934

0

Inside the surface S the flow is divided into an inviscid region with a superimposed viscous flow layer with zero longitudinal velocity. The flow in zone II is then assumed to be analogons to a source flow, and the various velocity components and derivatives (with respect to the transverse coordinate y) are calculated for two-dimensional as well as axisymmetric bodies. The limiting values for the axisymmetric case are given by

$$X_0 = 1, \quad X_m = 1, \quad \beta = \frac{\mathrm{tg}^3\theta}{\pi(1-\cos\theta)}$$
$$X_0 = \infty, \quad X_m = 3/2, \quad \beta = 27/8\,\pi^{-1}\,\mathrm{tg}\,\theta$$

where X = x/a and $\beta = \frac{h^2}{q}\left(\frac{\partial v_y}{\partial y}\right)_0$. Orig. art. has: 12 equations and 3 figures.

SUB CODE: 20/ SUBM DATE: 16Sep64/ ORIG REF: 002/ OTH REF: 001

Card 2/2

L 21764-66 EWP(m)/EWA(h)/EWT(1)/EWA(d)/EWA(1) WW

ACC NR: AP6010850 **SOURCE CODE:** UR/0421/66/000/001/0126/0127

53
B

AUTHOR: Maykapar, G. I. (Moscow)

ORG: none

TITLE: Bodies formed by surfaces of conical streams

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 1, 1966, 126-127

TOPIC TAGS: supersonic aerodynamics, supersonic flow, conic flow, supersonic shock wave, axisymmetric flow

ABSTRACT: This paper deals with the design of three-dimensional bodies with the aid of stream surfaces of supersonic conical flows past cones at zero angle of attack whose shape and aerodynamic properties can be determined without too elaborate calculations. These calculations will make it possible to analyze the effect of body shape on aerodynamic properties and to select optimal solutions. It is shown that the shape of a broad category of bodies with sharp edges can be determined by stream surfaces of axisymmetric flows behind conical shock waves. The streamlines are determined from the equation describing the line of intersection of two conical shocks. Bodies formed by stream surfaces behind two similar shock waves are considered as an example. The one shown in Figs. 1 and 2 is symmetric with respect to the xy- and xz-axes corresponds to $x_0 = 0$, $\theta = 15°$, and $M_\infty = 3$. Conical shocks are represented by dash and dot lines. The forward section resembles the shape of

2

Card 1/3

L 21764-66

ACC NR: AP6010850

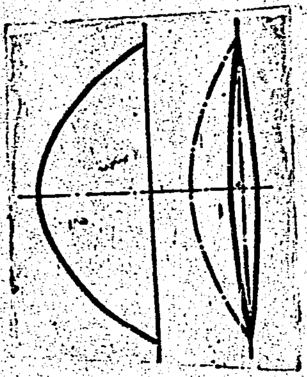


Fig. 1. Body shapes

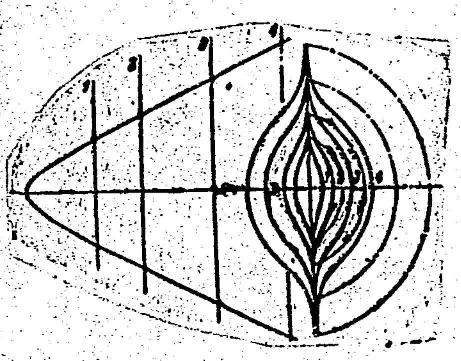


Fig. 2. Body shapes

a symmetric wing with a segmental profile (Fig. 1), and its cross section asymptotically approaches a circle with plane meridian fins (see Fig. 2). Other configurations formed with vertices of three and four similar conical shocks located in vertices of a regular polygon in the yz-plane are presented. The cross sections of these bodies formed by intersection of adjacent shock waves are of star-like shape, and in contrast to bodies formed by plane shock waves, vary

Card 2/3

L 21764-66

ACC NR: AP6010850

O

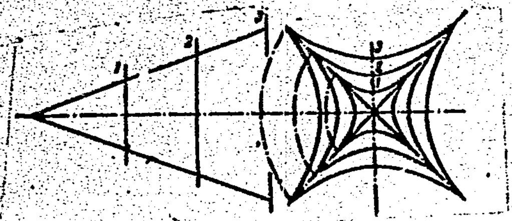


Fig. 3. Body shapes with $\theta = 15°$, $M_\infty = 3$, $n = 4$

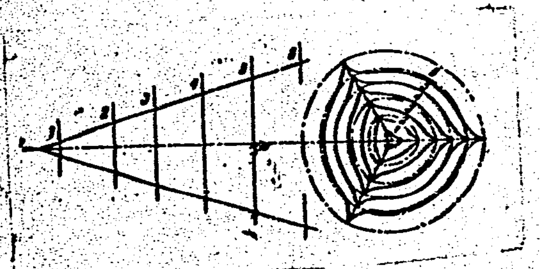


Fig. 4. Body shapes with $\theta = 15°$, $M_\infty = 7$, $n = 3$

with the length of the body and asymptotically approach a circle with increasing distance from the tip (Fig. 3 and 4). Orig. art. has: 7 figures and 3 formulas. [AB]

SUB CODE: 20/ SUBM DATE: 01Jun65/ ORIG REF: 003/ ATD PRESS: 4227

Card 3/3 PB

L 23439-66 FS(m)/EWT(1)/EWP(m)/EWA(d)/T-2/EWA(1) WW

ACC NR: AP6007587 SOURCE CODE: UR/0040/66/030/001/0186/0189

AUTHOR: Maykapar, G. I. (Moscow)

ORG: none

43

B

TITLE: A wing with maximal aerodynamic quality at supersonic speeds 1,55

SOURCE: Prikladnaya matematika i mekhanika, v. 30, no. 1, 1966, 186-189

TOPIC TAGS: aerodynamics, aerodynamic design, aerodynamic resistance, aerofoil theory, drag force, supersonic aerodynamics

1,55

ABSTRACT: The variational problem on a wing with maximal aerodynamic quality and given volume is solved. Problem conditions include the assumption that pressure obeys Newton's law, the wing is thin, and frictional resistance is independent of the profile form of the wing. It is shown that the wing with maximal aerodynamic quality has a profile which is distinct from the profile of a wing having minimal wave resistance. The optimal profile is found to be dependent upon the given volume and the friction resistance and can vary with taper up to the profile of the minimal wave resistance section. Under the set of assumptions for this problem, the resistance, inertial forces, and wing volume are given by

$$X = X_0 + \iint (p_1^3 + p_2^3)\, dxdy = X_0 + I_3, \qquad Z = \iint (p_1^2 - p_2^2)\, dxdy = I_2,$$

$$\left(p = \frac{\partial z}{\partial x}\right) \qquad V = \iint (z_1 + z_2)\, dxdy = I_1,$$

Card 1/2

L 23439-66

ACC NR: AP6007587

where X_0 is the frontal resistance component. K is defined as the quality parameter such that

$$K=\frac{I_2}{I_2+X_0}=\max \quad \text{for} \quad I_1=\text{const},$$

and $z_1 = z_1(x,y)$ and $z_2 = z_2(x,y)$ are the equations of the lines forming the upper and lower profiles of the wing. The variational problem parameters are given, and a combination graphical-analytical solution yields the relationship

$$K\nu=\frac{1}{\sqrt{27+\nu^{-2}\xi}}, \quad \nu=\frac{V}{k^3l^3}, \quad \xi=\frac{X_0}{kl^2}$$

and the optimality condition

$$\nu={}^1/_3\left(\frac{\xi}{2}\right)^{1/3}, \quad K={}^2/_3\left(\frac{2}{\xi}\right)^{1/3}.$$

Orig. art. has: 13 equations and 3 figures.

SUB CODE: 01, 20/ SUBM DATE: 12Oct65/ ORIG REF: 003/ OTH REF: 001

Card 2/2 KV

L 46680-66 EWT(1)/EWP(m) WW

ACC NR: AP6020728 SOURCE CODE: UR/0421/66/000/003/0095/0097

AUTHOR: Maykapar, G. I. (Moscow)

40
B

ORG: none

TITLE: Nonvariational Newtonian problems for non-gently-sloping bodies

SOURCE: AN SSSR. Izvestiya. Mekhanika zhidkosti i gaza, no. 3, 1966, 95-97

TOPIC TAGS: Newtonian postulate, variational problem, hypersonic flow, aerodynamic theory

ABSTRACT: Unlike earlier investigators, the author does not assume that Newton's law for the pressure on the surface of a body moving with hypersonic speed applies only to bodies with gently varying slope. By analyzing several particular variational problems for axisymmetric bodies and bodies of revolution it is shown that 1) the laws governing the variation of the transverse cross sections of axisymmetric bodies and bodies whose transverse cross sections are in the form of regular polygons have an identical dependence on the length, and 2) the law governing the length dependence of the body having the minimum resistance depends on the magnitude of the radius of the bottom of the body or on the volume of the body. In those regions when the Newtonian extremal analysis does not apply, a power-law variation is assumed. Orig. art. has: 3 figures and 12 formulas.

SUB CODE: 20/ SUBM DATE: 26Nov65/ ORIG REF: 002/ OTH REF: 001

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MAYKAPAR, Ye.A., inzhener.

Speed the introduction of link locks. Izobr.v SSSR 2 no.7:19 Jl '57. (MLRA 10:7)

(Fastenings)

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[illegible] Ye.A., [illegible]

[redacted], [illegible] 22 [illegible]

[illegible]

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Automatic speed control of pistons in hydraulic cylinders.
Izobr.v SSSR 2 no.10:13-14 O '57. (MIRA 10:11)
(Pistons) (Automatic control)

MAYKAPAR, Ye. A., inzh.

Registering a new invention. Izobr. i rats. 3 no. 4:23-28 Ap '58.
(MIRA 11:7)

(Patent licenses)

MAYKAPAR, Ye., inzh.

Drilled drills. Izobr.i rats. no.12:24-25 D '59.
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(Twist drills)

MAYKAPAR, Ye.A., inzh.

Automatic regulation of a hydraulic drive. Izobr.i rats. no.6:[illegible]-5 Je '60. (MIRA 14:[illegible])
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SO: U-411, 17 July 1953, (Letopis 'Zhurnal 'nykh Statey, No. 2[illegible], 194[illegible])

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Moskva, Goslesbumizdat, 1960. 159 p. (MIRA 14:1)
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